

ART. IX. *Cases and Observations.* By R. D. MUSSEY, M. D., Professor of Anatomy and Surgery in the Medical Institution at Dartmouth College, New Hampshire, and Professor of Surgery and Obstetrics in the College of Physicians and Surgeons of the Western District of the State of New York.

CASE I. *Extraordinary Case of Animal Electricity.*—Thousands recollect the remarkable and brilliant red northern light, which appeared on the evening of the 25th January, 1837. On that evening Mrs. B., a lady of about 30 years of age, residing in Grafton county, New Hampshire, while occupied with her friends in contemplating that extraordinary phenomenon, discovered that an electric spark passed from her fingers, elbows, or any other part of the limbs or body, when brought nearly in contact with conducting substances. The possession of this faculty was scarcely less surprising to herself than to her friends, whose incredulity on its announcement, was soon dissipated by a few snaps from her finger. On the following day the same power existed; and subsequently, more or less, for twelve or thirteen weeks. Its intensity gradually increased for four or five weeks, and from that, as its maximum point, it slowly declined, till early in May, when it was entirely lost, and has not since returned.

She was much annoyed with a spark passing as often as twice in a minute from her feet, when placed upon the hearth-plate of an iron stove; and in a dark place her hands, on being rubbed together, often exhibited brilliant electrical coruscations.

Animated conversation and moderate exercise appeared to promote the electrical accumulation. On taking a turn or two across the carpet, the intensity of the spark was evidently augmented. The state of the atmosphere, in regard to moisture and dryness, seemed to exert no influence upon this faculty. It was not so, however, with temperature. A low temperature enfeebled it, and at 25° F. it disappeared altogether; but was resuscitated by a due elevation of temperature, and at 70° or 80° its activity appeared to be at its maximum.

On some occasions a visible spark could be produced once in a second; and in a minute four strong sparks, each an inch and a half in length, were elicited.

Mrs. B. wore a silk dress at the time of the commencement of these phenomena, and during most of the period of their continuance; but, at the suggestion of her physician, this was exchanged for cotton and flannel dresses successively, without exerting the least apparent influence upon this extraordinary faculty.

Col. B., the husband of this lady, was absent at a remote part of the country, at the time of the electrical developement. On his return in April, she met him at the door, and playfully presenting her finger to his face, astonished him with her newly acquired power.

Mrs. B. is a lady of intelligence and worth; possesses a flow of spirits; and has a temperament somewhat sensitive, to which her sedentary habits may have contributed, as she has devoted a considerable time to books. She has been married about ten years; has had no child; but without much irregularity, has been visited with the periodical illness. Before marriage she was subject to dyspepsia, accompanied, more or less, with neuralgia. Since marriage she has enjoyed better health, although it has not been vigorous.

The foregoing statements may be relied on. The facts are notorious in the place of her residence. With her family, as a consulting physician, I have been acquainted for some years. I called upon her early in May; but the electrical phenomenon had wholly disappeared a short time before. She informed me that she thought her health was not quite as good during the electrical developement as it had been previously.

She, as well as her family friends, confirmed the facts above stated, for which I am primarily indebted to my intelligent friend Dr. W. Hosford, her physician, who resides in the same village, and who has taken a lively interest in her case.

CASE II. *Congenital Absence of the Meatus Auditorius Externus of both Ears, without much impairing the hearing.*—Mr. N. W. Goddard, æt. 27, of Windsor county, Vermont, bookseller, requested me in 1834, to examine his ears; at the same time remarking, that his hearing was not quite as quick as he could wish. The left auricle was smaller than the average size, and its several ridges and pits not quite perfectly developed. The right auricle was scarcely half as large as the others, and very imperfect in its form. In neither of them was there a vestige of an opening or passage of the external ear. There was not even a decided indentation, corresponding with the entrance of the ordinary orifice of the meatus externus, but the whole was sealed up, and made smooth and firm by common integument. From the best examination I could make, by moving the auricles from side to side, and attempting to depress the skin in the situation of the usual orifice, I came to the conclusion that there was probably nothing like an occult canal between the integuments and the tympanum.

The sense of hearing was too obtuse for low conversation, and yet

it was sufficiently good to enable him to prosecute his business without material inconvenience. He informed me that the ears, and the power of hearing, had been in the same state from his earliest recollection, and according to the assurances of his parents, from the first period of infancy. I made several experiments in this case, from which it appeared that an open or shut mouth and nose had no influence whatever upon the power of hearing. The experiments were repeated so as to satisfy all present, as well as Mr. G. himself, that he could hear with equal readiness when the lips and nose were closed, and pressed together by the fingers of assistants, as when both were wide open. I bent a probe to the proper angle, attempted to introduce it into the Eustachian tube; but although its extremity was arrested, as by a pit or fossa, I could not pass it as usual up towards the internal ear. When the probe in this situation was repeatedly pressed in the natural direction of the Eustachian tube, he complained of an uneasy sensation deep in the ear. From these ineffectual efforts to push the probe as far as usual, and from the hearing being nothing impaired by a firm closure of the lips and nose, I concluded that the Eustachian tube, if its guttural orifice existed, had no communication with the cavity of the tympanum.

The hearing was equally good upon the right and left side of the head, and a sound from behind was quite as readily appreciated as one coming from a position in front, or on either side. I covered the whole head with successive layers of cloth, and found the hearing to be decidedly obscured by the application of a single layer, and by each of the others in proportion. A few layers only were sufficient to deafen him to almost the loudest articulations which could be made. Covering the face while the ears were left exposed, evidently obscured the hearing, with the mouth and nostrils open or closed. When the ears were included in the covering, the difference, if any existed, was not very distinct. But covering the hairy scalp, except a small portion at the anterior and upper part, leaving the face and ears bare, depressed the hearing in a marked degree, much more than covering the face and ears, leaving out the scalp. These experiments were so many times repeated, as to leave, I think, no room for mistake. On speaking to him with one end of a stick in my mouth, while the other end was applied in succession to different parts of his head and face, I found that the part over the mastoid process conducted sound the most readily: and the parts corresponding with the upper two-thirds of the occipital, the mastoid plate of the temporal, and the posterior half of the parietal bones, transmitted the sounds more readily than the anterior half of the scalp, the forehead, temples, or any other part

of the face. I saw Mr. G. again in May, 1836, and found his hearing powers in the same state.

It is evident that in this case the integuments of the face and scalp are capable of receiving acoustic impressions, from the atmospheric waves or vibrations necessary to the production of sound, and of transmitting them to the organ of hearing. By what nerves distributed upon those parts, is this function accomplished? Mr. Swan, who, in a paper upon the physiology of the ear communicated to the Medico-Chirurgical Society of London in 1820, and recorded in the eleventh volume of the Society's Transactions, describes a case in many respects similar to the foregoing, suggests that the facial nerve or portio dura may assume the vicarious function of audition, taking the office of the auditory nerve. If the facial be chiefly or wholly a motor nerve, as physiologists at the present time seem disposed to believe, the extraordinary function of one of the special senses would be less readily attributed to it, than to the trigeminus, a considerable part of which belongs to common sensation, while another portion is appropriated to the immediate function of taste. In the case of Mr. G., however, the distribution of the facial nerve could not explain the quick susceptibility of nearly the whole scalp to auditory impressions. It can hardly admit of a doubt that those nerves derived from the spinal cord below the occipital hole, and reflected in profusion upon the scalp, are concerned in this uncommon function; while the branches of the fifth pair are probably the seat of the peculiar faculty upon the face. Is there any way of determining whether the power thus specially subservient to the function of hearing be naturally inherent in the nerves of the face and scalp? and if so, can a method be devised of eliciting its dormant energy, and turning it to account in cases of deafness connected with casual disease of the external meatus, or the tympanum?

**CASE III. Successful Operation for Ovarian Disease.**—In the summer of 1828, I was consulted in the case of Mrs. Sly, upwards of 40 years of age, of Ryegate, Vermont. She had a tumour in the abdomen, which extended from the hypogastrium to the left hypochondrium; it was elastic, giving a distinct sense of fluctuation to the touch, and could be very slightly moved from side to side. This tumour was discovered about two years before, and had increased considerably within the last year. Three or four months before I saw her, she was confined some time with symptoms of subacute inflammation in the abdomen, after which, as her physician assured me, the tumour was less movable, than it had previously been. For two or

three years her general health had been variable, marked by dyspepsia and occasional febrile attacks; and since her sickness in the spring, although she had been gradually improving, her health was far from being sound. The monthly illness, which had not been perfectly regular, did not appear to have been influenced by the growth of the tumour; and from the whole complexion and history of the case, it was inferrible that the swelling was a cyst connected with the left ovary.

The patient had been taught by her physician, to expect a cure from an operation, in which the tumour should be removed, and was somewhat disappointed on my expressing great doubt of the practicability of safely extracting it, on account of the extensive adhesions which probably existed. She was, however, assured, that an operation might be undertaken without serious danger, and prosecuted so far as to admit of the precise state of the case being ascertained, and that the sac, if not removable, might be opened, and possibly so much inflammation excited in it, as to cause an adhesion of its walls, and an ultimate removal of it by absorption. With these views of the case, the patient and her friends decided upon the operation. I left her with the injunction to live on farinaceous preparations and milk, and revisited her in about a fortnight to perform the operation.

It was a warm afternoon in July, the temperature of the atmosphere being upwards of 80° F. when the operation was undertaken. An incision was made through the integuments at the linea alba, from the umbilicus to the symphysis of the pubis. On the viscera being exposed, a sac appeared extending from the cavity of the pelvis, through the left iliac and lumbar regions, into the left hypochondrium. This sac was so large as to occupy a portion of the epigastric, the right iliac, and lumbar regions; but did not extend into the right hypochondrium. Most of its anterior surface was covered by the mesocolon, with which a firm adhesion was formed throughout the whole extent of their contact, and the transverse portion of the colon was in the lower part of the abdomen, passing from one iliac region to the other. The upper part of the sac was firmly fixed by adhesions so high in the left hypochondrium, as to render it difficult to decide precisely what parts were involved; probably, however, the spleen and splenic extremity of the stomach were implicated; but as handling the viscera caused the patient to complain, this point was not ascertained.

These extensive adhesions settled the question of removal of the tumour by dissection. All that could safely be attempted was, to discharge the fluid and take measures to inflame the interior surface

of the cyst. Accordingly, upon the median line, in one of the meshes of the beautifully injected plexus of mesocolic vessels, a puncture was made large enough to admit a catheter, by which the fluid, slightly turbid, and amounting to between four and five pints, was drained off. The opening was then enlarged, and a tent of twisted charpie introduced a little way into the sac, the other extremity being left to hang out externally. The lips of the wound were then brought together and secured by three stitches, which did not penetrate the peritoneum, and by adhesive strips, to which additional support was given by a compress and broad band around the body.

The patient was kept upon her back for several days, until the adhesions of the wound, which united by the first intention, were firm. She was rather restless the first night after the operation, and took a moderate anodyne dose; there were no troublesome symptoms afterwards worth naming. For several days a thin fluid dripped away through and around the charpie. After a week the fluid became turbid, and in a short time distinctly purulent. In three weeks the discharge was trifling, and the opening speedily closed. In a few weeks more not a vestige could be felt of the sac, which, at the place of puncture, at the time of the operation, was about a line in thickness.

In about a year from the operation, Mrs. S. was safely delivered of a son, her fourteenth and last child. I saw her in the summer of 1835, and learned from her, that since the birth of her child she had enjoyed pretty good health. The abdominal integuments between the navel and pubis were at this time thin and pouched, and she found it convenient to avail herself of a little mechanical support from a laced waistcoat. During the advanced period of her last gestation, as she assured me, she suffered much from the distension of the abdominal integuments; and although she wore a laced garment adapted to the protuberant form of the body, she was in daily fear, lest the attenuated skin should give way at the cicatrix of the incision. Her fears, however, were not realized.

The case of Mrs. S. is one of the few which admit of a radical cure from ovarian disease, by a surgical operation. The cases are still rarer in which the diseased part can be safely dissected out. In the great majority of instances, the disease consists in a fleshy growth united with one or more cysts, and the few specimens of the disease in the form of a single cyst may be regarded as exceptions to a general rule.

Almost without exception adhesions are formed between these tumours and the abdominal parietes or viscera, or both; and these being

generally too extensive to admit of a safe separation by dissection, the operation for *removal*, especially where the tumour is wholly or in part fleshy, can never be attempted with confidence of accomplishing the object; and when attempted, can rarely be completed, without subjecting the life of the patient to imminent hazard. To be sure, cases have been reported of successful removal of ovarian tumours, even where the disease was not merely cystic: but there is reason to believe that a large majority of operations instituted with a view to dissect out the disease, have failed, and been instrumental to the speedy death of the patient. I could cite four cases of this kind, and if proper, could designate the several operators, who thus gave themselves occasion to repent of their temerity.

It does not seem probable that inflammation and adhesion of the walls of an ovarian cyst, induced as in the foregoing case, would be followed by the absorption of a morbid, fleshy, or solid growth accompanying it: there might, however, be no impropriety in making the trial, in a case of a small fleshy tumour, united with a large sac, provided the patient, after being made fully to comprehend the object, should prefer it. Of a numerous list of cases of ovarian diseases, which have been presented since the foregoing operation, I have not found one which, as it appeared to me, would admit of an operation with the least prospect of cure. In conclusion, I will remark, that should another case offer itself like that of Mrs. S., I should proceed to open the abdominal parietes at the median line, for an extent sufficient to enable me to penetrate the sac under the direction of the eye. Let it be remembered, that in the above case, the transverse colon passed across the abdomen in front of the sac, and was immovably attached to it by adhesion, about midway from the navel to the pubis: of course the common operation of abdominal tapping would probably have been fatal.

*CASE IV.—Adhesion of the walls of the Vagina.*—In January, 1835, I was requested by my friend, Dr. L. A. Smith, of Newark, New Jersey, to visit Mrs. B., æt. 26, the wife of an intelligent mechanic, from Northampton, England, who had been six months in this country. For more than three years, that is, since the birth of her only child, she had not menstruated; and without intermission, during that period, she had experienced a difficulty, and much of the time had suffered great pain in passing the fæces and urine. At the recurrence of the monthly period, her pains were excruciating, so as to confine her to bed. After the birth of her child, she had a purulent discharge from the vagina for four or five weeks, the sequel of severe



and protracted labour, in which the head of the child lay imbedded in the vagina for three days. During her convalescence, notwithstanding the existence of this discharge, together with great soreness in the vagina, and difficulty in urination, her physician made no examination of the parts, but expressed to Mrs. B. the opinion that she had a stone in the bladder, and some day would be under the necessity of having it extracted. With this impression, soon after arriving in the United States, she put herself under the care of Dr. S., who, on investigating the case, ascertained that the walls of the vagina were adherent, and correctly judged that her severe and protracted sufferings were owing to this circumstance.

On examining the parts, I found only three-fourths of an inch of the vagina open, its walls thickened, the calibre small, and the cicatrix of adhesion very firm. By passing a finger into the rectum and a catheter into the bladder, it was ascertained that a tumour, yielding very slightly to pressure, occupied the upper half of the cavity of the pelvis, extending antero-posteriorly, so as to compress the rectum and the bladder. This readily explained the pain and difficulty attending the evacuation of those organs, and the fact of her seldom having had a motion of the bowels without an active cathartic. This tumour extended some distance above the brim of the pelvis.

After due preparation, by evacuating the rectum and bladder, the operation was performed. Assisted by Dr. S., I made a cautious dissection, with a narrow scalpel, from side to side, into the cicatrix, in a direction which I had previously decided upon, from an attentive consideration of the anterior and posterior extent of the tumour. Having pursued the dissection about an inch, I passed the instrument into a cavity, from which gushed a stream of thick black fluid. A considerable quantity of this being drained off, the opening was enlarged so as to admit of the easy passage of the finger. The uterine portion of the vagina and the cervix uteri had been so dilated, as to be scarcely distinguishable from each other in forming the common wall of a sac, which had been gradually enlarging for three years by the menstrual accumulation. The parts were cleansed with warm water, and a bougie, moistened with oil, left in the wound. Dr. Smith had the care of the patient afterwards.

In a letter from that gentleman the following March, viz: three months after the operation, he says,

"I write to inform you of the result of the operation for adherent vagina in the case of Mrs. B. The wound is now entirely healed, and the cicatrix is much more yielding than I expected. The finger can be passed very easily, and without pain, to the os tinæ. The bowels and bladder are easily evacu-



ated. She menstruates regularly, though she suffers more pain at such times than before the vagina became diseased. The strength is improving, and she has every prospect of a perfect restoration to health."

In a letter of December 10th, 1837, the same gentleman writes,

"Up to last fall and the beginning of winter, when she removed from town, Mrs. B. had good health: her menses appeared regularly and in the usual quantity, though she usually, at the period, suffered rather more pain than she did formerly. The last time I examined her by the touch, which was about a year after the operation, the passage was firmly contracted, admitting only the finger, and that with some pain. The uterus was entirely healthy, though she has not been pregnant, probably from not having been exposed."

With regard to the contracted state of the vagina thus described by Dr. S., I would remark that it might, in all probability, be dilated to almost any requisite extent, by the persevering use of bougies, joined with mucilaginous and unctuous applications, and possibly the extract of belladonna. Even should pregnancy take place, it is not improbable that nature would make such preparation of the parts as to admit of safe delivery.

*CASE V. Arm and Shoulder-blade torn from the Body.*—On the first of April, 1819, Albert Webster, a robust youth, of 16 years of age, had his left arm and shoulder-blade torn from his body in a cotton factory. On my arrival, two hours after the accident, I found him lying on his right side, and in place of his shoulder-blade, an oval-shaped wound, six inches in its vertical, and five in its horizontal diameter, covered with a material resembling the white of an egg, about one-fourth of an inch in thickness. The margin of the wound was more even and regular than I should have expected to be made by a forcible disruption of the skin. The collar-bone projected half an inch or more at the upper part, and a little below it was a coagulum as large as the point of the finger, alternately rising and retreating in conformity with the arterial pulsations.

There was no hemorrhage at the time; and I was informed that probably not more than a pint of blood had been lost. On inspecting the clothing and the place where the accident occurred, I was of opinion that all the blood discharged was less than a pint. Hanging from the wound were two large nerves, (without much doubt the meridian and the ulnar,) more than twenty inches long, which were still sensitive near the body, and the cutting of which at the surface of the wound, caused the patient to complain of a pain, which he referred to the hand of the injured side. The part of the large pectoral muscle which remained was contracted, forming a tumour, tender to the

touch, between the anterior edge of the wound and the sternum, while at the posterior edge the rhomboid muscle hung loose and insensible. The projecting portion of this muscle was cut away, and the edges of the wound approximated so as to cover the extremity of the clavicle, and meet; the integuments also were made to meet at the lower angle of the wound, but could not be brought together at the middle without rendering the skin too tense for safety. An uncovered space was therefore left, an inch and a half at the widest part. No ligature was applied to any vessel, nor were stitches employed in the wound; adhesive strips, a compass, and bandage constituted the dressings.

The patient, for the first two weeks, was kept exclusively upon farinaceous substances, prepared with water; afterwards some milk was added. The symptoms were mild; most of the wound united by adhesion. A small abscess under the clavicle was opened on the eighth day. In two weeks the wound was healed, except the part uncovered by integuments; upon this the skinning process was comparatively slow. In eight weeks, however, the wound was perfectly healed. A year after the injury, I saw the patient, and found a bony plate, apparently about three-fourths of an inch wide, taking such a course as to represent the marginal parts of the entire body of the scapula, firmly adherent to muscular parts beneath the skin. This triangular bony frame could be moved upward and downward, backward and forward, by a voluntary motion of the muscles attached to it.

Some of the circumstances connected with the accident were interesting. The young man was at work mending a broken band, which, being looped over his left arm, was carried, as he stooped to pick up something from the floor, under the main band, became entangled in it, and drew him up in a moment to the drum or cylinder, which carried all the bands of the carding machines in the room. His arm was drawn through the space between the drum and the ceiling, the fore-arm badly broken, probably at this time; his head and body were arrested by the ceiling and the drum, and for a few seconds the whole machinery was stopped.

From the account given by the agent of the factory, who was a spectator of the scene, and from what the patient himself recollected, it is probable, that at this juncture, the latissimus dorsi and pectoralis major muscles gave way, and that then making an effort with the other arm, and changing his position, the patient became more entangled with the bands, while the machinery started afresh, carrying him through the space between the drum and the ceiling. By

this time he was so involved in the bands that his body was secured fast to the drum, while his legs, as he passed under it, hung dangling. In this way, without apparent change of position, he made, as the agent who saw the whole assured me, about fifteen revolutions round the drum before the motion of the machinery could be effectually stopped by cutting off the water from the great wheel. At each of these revolutions, his legs fell with such force upon some top card pins, which were uncovered upon a carding-machine under him, that he was wounded with ten or a dozen holes, punched some of them deep into the legs, by these blunt iron pegs, two inches or more in length, and perhaps one-sixth of an inch in diameter. When he was disentangled from the bands, and taken down from the drum, he was able to stand upon his feet, and I was told that he actually walked a few steps. As his frock was opened, his arm with a clot of blood dropped upon the floor. I measured accurately the space between the drum or cylinder and the ceiling of the factory, through which he passed several times, as before stated, and found it to be scarcely *seven inches and a half*, although the ceiling was a plastered lathing, which probably might have yielded or bent a little as he passed. The wounds of the legs were a little troublesome for two or three days, but caused no serious symptoms; the soreness of them appeared to be much relieved by keeping the legs wrapped in dry batted cotton.

It was an object with me to be able to conjecture what amount of resistance the integuments and muscles could make, before the limb could be separated from the body; and as the whole machinery in free motion was arrested, and held in check for a few moments before these parts gave way, and as the whole force was probably for a short time thrown upon the large pectoral and latissimus dorsi muscles, it appeared probable that the power of these muscles, the thick axillary margin of them especially, might be pretty nearly tested. Accordingly, the agent, Mr. Green, kindly assisted me in an experiment to ascertain the weight requisite to arrest the full motion of the whole machinery of the mill. A few turns of a large rope were passed round the drum; to one end of it was appended a tierce containing weights, while the free end of the rope was held by an assistant. So long as the rope was loosed, its coils glided freely upon the revolving cylinder; the moment the free end of the rope was tightened, the tierce was raised from the floor. Weights were added in succession, till the tierce just balanced the whole power of the machinery. The weight was eight hundred and thirty-nine pounds. This I am disposed to regard, from the best history I could obtain of the accident, as an approximation to the force employed in the dismembering ope-

ration, and it seems probable that, for a short space of time, the muscles just named, forming the anterior and posterior margins of the axilla, sustained themselves against this immense weight.

CASE VI. *Exostosis of the Frontal Bone*.—P. Weeks, æt. 21, consulted me in September, 1837, for a tumour on his forehead, which extended from the nasal process of the frontal bone over the median line to the margin of the hairy scalp. This tumour perfectly hard and immovably attached to the body of the frontal bone, presented itself in the form of an obtuse ridge, its base an inch and a little more in its horizontal, and three inches in its vertical diameter, and its height about three quarters of an inch above the level of the surrounding surface. He remarked that *fourteen* years ago, when tilting upon a board, he fell with his forehead upon a stone; that the wound at the time was slight and soon healed, but that five years afterwards, viz: *nine* years ago, the commencement of the present tumour was observable. Within the last year and a half, he assured me that its enlargement had been very manifest. From its slow growth, its hardness and the absence of pain or soreness, and of cerebral irritation, I was induced to regard it as simple exostosis, and advised its removal.

In October he returned and submitted to the operation. The integuments were divided along its summit and dissected from its sides and base, and a groove cut with a Hey's saw around its base; I then introduced a chisel into the groove, hoping to strike off the whole tumour by a few strokes of a small lignum vitæ mallet an inch and a half in diameter. This I found myself unable to do; the tumour was nearly as solid and hard as ivory. By carrying the chisel twice or three times round the base, and sinking it deeper and deeper by numerous and smart blows of the mallet, I at length succeeded in splitting off most of the tumour in a block. The remaining irregularities were easily chipped away; and shavings of this bony substance which had nearly the compactness and solidity of ivory, were removed in succession by light taps of the mallet, and a sharp cabinet-maker's chisel, till the whole was reduced to the level of the surrounding surface, and was almost as smooth as the natural bone. The integuments were brought together over this surface, and secured by adhesive strips, and the wound was entirely healed in eight days. I find by examining the patient several times since, that the integuments glide freely over the chiselled surface, except along the line of the incision, where the cicatrix adheres so as to admit only of very slight motion.

I have introduced this case partly on account of the extreme hard-

ness and density of the morbid growth, approaching very nearly to that of the most compact ivory, a form of exostosis, which, I presume, must be very rare; and partly with a view to recommend the chisel and mallet as altogether the most useful instruments I have employed in removing bony excrescences. In cases where the pedicle of the tumour is circular and not more than three-quarters of an inch in diameter, and the texture not very compact, the whole mass may be struck off at a single blow.

In a case a few years since,\* of exostosis springing from the axillary side of the os humeri near the head,—with tuberosous prolongations which embraced more than half of the circumference of the bone, and with one of its protuberances so extensive as to compress the axillary vessels and nerves even to numbness, and an obvious obstruction of the circulation,—on the arm being raised to the horizontal position, I found the mallet and chisel the only efficient instruments I could employ. No kind of saw I have ever seen could have enabled me to accomplish the object, except imperfectly, and at the same time with aggravated and protracted suffering for the patient.

In the hospital of La Charité, in Paris, I saw the surgeon of that institution remove an exostosis rather less than a hen's egg from beneath the deltoid muscle. Instead of dividing the soft parts over the middle of the tumour, turning them aside out of the way, exposing the whole excrescence to view, striking it off with a few strokes of the chisel and mallet, and occupying but a few moments in the essential part of the operation; he made an incision on each side of the tumour, leaving a segment of the skin and muscle resting upon it; then with the narrow blade of a bow frame saw introduced through the incisions, he proceeded to saw away the tumour. This he at last accomplished after a slow and interrupted operation, accompanied with an agony on the part of the patient, such as I do not remember to have witnessed in any other surgical operation. The suffering continued for some time after the patient was carried to his bed, as indicated by his incessant cries till I left the hospital. This pain may doubtless be explained by a reference to the ordinary course of the circumflex nerve, and its necessary proximity to that part of the tumour which was subjected to the blindfold movement of the teeth of the saw.

\* The patient was Dr. Cressy, of Essex county, Massachusetts. The operation was performed nine or ten years ago, and nothing of the disease had reappeared two years since.

**CASE VII. Removal by dissection of the entire Shoulder-blade and Collar Bone.**—Nineteen years ago, Mr. Horace Wheeler, then æt. 27, from Randolph, Vermont, consulted me for a bony tumour larger than a hen's egg, involving nearly the whole length of the metacarpal bone of the thumb, and another somewhat less, implicating the distal half of the metacarpal bone of the fore-finger, both upon the right hand. These tumours I removed by disarticulating the metacarpal bone of the thumb from the trapezium, and by sawing that of the fore-finger just below the insertions of its carpal, flexor, and extensor muscles. The wound healed kindly, and there was no appearance afterwards of disease upon any part of the hand.

About two years after this operation, pains were occasionally felt in the forearm, and sometimes extended to the upper arm. These pains, which were denominated rheumatic, continued more or less for eleven years. The last two or three years of this period, as nearly as Mr. W. can recollect, the pain was fixed in the upper part of the arm, and during the last year, the upper half of the arm and the soft parts about the shoulder joint underwent an enlargement so considerable, that the diameter of the limb just below the articulation was about twice the natural size; the integuments were much firmer than natural, and the slightest possible passive motion only, could be given to the joint. During the last two years and upwards, the pain in the arm was most severe at night, and through the cold season especially; the patient could seldom lie in bed, but found some relief and obtained at intervals a short nap, by occupying his chair through the night.

Not in the least relieved under the variety of prescriptions made by several practitioners, and worn down and disheartened by almost incessant pain, he consulted me in the autumn of 1831; and on the 3d of November of that year, that is, about *thirteen* years after the first operation, I amputated the arm at the shoulder joint. The operation was somewhat embarrassed by the induration of the soft parts, and in consequence of their exalted sensibility was very painful. The disease appeared not to have extended to the scapula, the glenoid cavity looking healthy; but the soft parts beneath the acromial half of the clavicle and around the neck of the scapula were a good deal thickened, and the apprehension was expressed to the patient, that, although the wound might heal, the disease might reappear in the neighbourhood. The wound healed readily, and the parts appeared sound; but the ensuing February the stump was attacked by inflammation, terminating in abscess, and in the following August another



abscess discharged spontaneously, and was healed in three weeks. From that time no abscess or ulceration has appeared upon the stump.

After this, Mr. W.'s general health was pretty good, never high, but such as to enable him to attend to some little business, and superintend the concerns of his family, until about the first of October, 1836, *five years* after the amputation. At that time, a dull pain was felt in the shoulder, and from that period the pain increased, fluctuating at intervals, sometimes dull and heavy, sometimes lancinating. The parts about the shoulder began to swell soon after the attack of pain, and like the pain, increased through the ensuing year. Late in the summer, (1837,) Mr. W. consulted me again, but discovered some reluctance and dread at the idea of the remedy I suggested, as the only means, *possibly* of effecting a cure, *probably* only of prolonging life a few years; namely, dissecting away the tumour together with the shoulder blade and collar bone, both of which appeared to be invaded by disease. He went home and put himself under the regimen of a quack steam doctor, who promised to disperse the tumour in a short time. Under the treatment instituted the pain and swelling increased so rapidly that Mr. W., of his own accord, soon abandoned the course, and made up his mind for the operation.

After a preparation of four or five weeks, living chiefly on farinaceous food, with a moderate proportion of milk, he submitted to the operation on the 28th of September, 1837, about six years after the amputation. At this time the tumour was round and prominent, measuring horizontally, over the summit from the anterior to the posterior margin of its base, *fourteen* inches, and vertically from the upper to the lower margin of its base, *ten* inches. A part of the surface, but slightly discoloured, was exquisitely sensitive on pressure; the integuments were tense, thin, and glossy, although they had not yet ulcerated.

An early step in the operation, which was performed in presence of several medical gentlemen, and the autumnal class, consisted in dissecting away the integuments from the clavicle, disjoining it from the sternum, elevating its sternal extremity, and relieving it from the subclavian muscle so as to admit of the finger of an assistant being passed under it to compress the subclavian artery. The subsequent steps of the operation need not all be detailed, as they consisted chiefly in plain, *coarse*, and sometimes rapid dissection. The operation was borne with but very little complaint, and on the removal of the whole mass, the patient appeared comfortable.

The first object was to apply a ligature to the subclavian artery. This vessel was seized and drawn out for that purpose, and just as the ligature was fixed upon it, a slight gurgling noise was heard, and an air



bubble was seen by my friend and colleague Dr. Oliver, as well as by Dr. Hoit and others, in the mouth of the subclavian vein, which must have been divided not far from its union with the jugular. A finger was immediately placed upon the open extremity of this vessel. At this juncture the patient appeared to be struggling under some new and strong impression. He uttered a low groan, his eyes were rolled upwards and fixed, his face and neck were bedewed with a cold sweat, the pulse in the neck, wrist, and heart, was imperceptible; consciousness was gone, and for eight or ten minutes by estimation, all that remained of the visible actions of life was a feeble, slow, abdominal respiratory movement, recurring at very long intervals. Ammonia and camphor were applied to the nostrils and tongue, but without apparent effect. At length the respiration became gradually more natural, the pulse was faintly perceptible, and slowly increased in distinctness, the eyes at last moved, and the patient waked up as from death. The extensive flaps of the wound were immediately put in place and secured by stitches, adhesive strips, compress and roller, and in half an hour the patient was very comfortable.

From that time there was almost no pain, and the immense wound, with flaps of seven or eight inches in extent, united by adhesion, and became consolidated and sound, *literally* without the formation of a *teaspoonful* of pus. There were a few drops only around the ligatures. In less than three weeks, the patient was dismissed and rode home in a stage-coach, between thirty and forty miles, and remained sound and well in November.

The alarming swoon into which Mr. W. fell at the time of the operation, must have been owing, I believe, to the introduction of air into the veins. The symptoms were much like those described by M. Amussat, as having recently taken place in a patient upon his operating table. A very little addition to its disturbing influence, it should seem, must have extinguished life. The uncommon exemption from pain after the operation, and the kind healing of the entire wound without suppuration, I am disposed to attribute to the circumstance of the patient being well prepared for the operation, taking no anodyne or narcotic before or after the operation, and living *exclusively* upon gruel the first ten days, and upon the same thing with the addition of mush and rice, with a small allowance of milk, afterwards during his stay at Hanover.

Here I will remark, that I have had an opportunity of witnessing the effects of severe operations upon patients in the habitual use of opium, and upon those not in the *habit* of taking it, but who took large doses to 'support them' under the operation, and I can have no doubt

that the latter class of patients suffer more pain during the operation, and are unspeakably more uncomfortable for several hours afterwards, than those who take none. Indeed ought not this result to be expected, when the nervous system is compelled to grapple with the influence of a powerful narcotic, in addition to the shock of an operation? Within the last two years I have seen the female breast removed after the lady had been prepared by taking two hundred drops of laudanum. For some hours after, her respiration was greatly agitated, and her sufferings were unusually severe from pain and prostration. As for those in the habitual use of opium, their sufferings, subsequently to a grave operation, are often most intense. I amputated the thigh of a patient who had used opium daily for several years. Soon after the wound was dressed, the pain became acute and increased to a frightful extent. He took an incredible quantity of opium in substance or solution, and it was not until after the lapse of fifteen or sixteen hours, that he was in any considerable degree relieved from his agony. During the healing of the wound, which was slow, he had a great deal of pain, for which he continued to take opium. He was not without pain a day, (as I think he afterwards assured me,) for two months, and did not gain an entire exemption from it until he laid aside the opium altogether, and invigorated his system by a long journey. I have recently performed two amputations of the leg for patients who had taken a considerable quantity of opium daily, the one for two, the other for three months. Both patients suffered intensely in the stump for a long time after the dressings were applied. The patient, a female upwards of sixty years of age, who had taken opium for three months, had the operation performed between eight and nine o'clock in the evening of the 10th of November, 1837. She suffered indescribably through the whole night, and although sulphate of morphia was administered in astonishing doses, so as to prostrate the strength to an alarming degree, and give an idiotic expression to the countenance the following morning, she was still roused to shrieking every few minutes by the severity of the pain. Dr. M<sup>c</sup>Gregory, the gentleman who had the care of this patient, writes me under date of December 16, 1837,

"Mrs. K. yet lives, but in a low and languishing state. Spasms almost insupportable continued after the amputation of the limb more than a week, after which they gradually diminished, and for a few of the last days they are hardly to be noticed. But pain of the stump yet remains of the severest kind, attended for the last two weeks with emaciation and mental alienation. She probably cannot survive more than a short time. No rest can be procured, unless by morphine; she has been obliged to increase rather than diminish the quantity."

He further remarks, that no part of the wound healed by the first intention, and that there is still a suppurating surface of considerable extent, with an unhealthy discharge. This is by no means remarkable, considering the deeply narcotized state of the constitution ever since the operation.

But to return to the case of Mr. W. The tumour connected with the shoulder blade and collar bone, when opened was found to contain a quantity of thick coloured or glue-like fluid, covered by a cartilaginous mass, in which were small amorphous deposits of bone. A part of the clavicle, and more than three-quarters of the body of the scapula, with its spine, acromion, and coracoid process, exhibit the disease by a degeneration, more or less, of the natural tissue, presenting a coarse spongy texture, with, at some parts, an exuberant growth of bony vegetations.

The following description is from my friend Dr. N. Worcester, who had the care of macerating and cleaning the bones.

"When I cleaned the bones after maceration, I found the jelly-like matter appeared every where in contact with the bony surface, and on the costal side of the scapula appeared to have burrowed under the periosteum, and wherever it existed the bone has taken on the spongy appearance; and where the periosteum was united with the bone, the last appears healthy. I found too, after the bone had been macerated, that what formed the other part of the cavity, which was not bone containing this matter, became hard, and most resembled cartilage, and was attached to the sound bone. Was this thickened periosteum?"

The appearances were similar upon the metacarpal bone of the thumb, and upon the os humeri. This last bone is diseased in its entire diameter and upper half of its length. The whole substance of the bone resembles very coarse sponge, and from the lower point of the diseased part it is regularly enlarged upward to the articulation, presenting a spongy cone with a rounded base, which is three inches and an eighth in diameter, that is, at the head of the bone. The articular surface of the head is still smooth, and remains in the form of a thin convex plate, loosely adherent to the coarse open tissue of the degenerated mass.

The patient is on the look out for another visit from his disease; but should his apprehensions be realized, he has certainly no means of determining what part will be selected for its next location.

**CASE VIII. Operation for Enlarged Tongue.**—John E. Hatch, æt. 15 years, was brought to me on the 13th of October, 1837, with hypertrophy of the tongue. His friends asserted, that at the time of

birth his tongue was above the ordinary size; and that at the age of nine months it began to hang out at the mouth.

By accurate admeasurement of the tongue, I found it to present the following dimensions.

From the margin of the upper lip, over the anterior and convex surface of the tongue to its tip, *five and a half inches*. From the same point upon the tip of the tongue to the lower lip, *three inches*. Largest lateral diameter, *two inches and three-quarters*. Largest vertical diameter, *two and a half inches*. Circumference at the largest part, *eight inches*. The anterior part of the lower jaw, during the progressive stages of its growth, had been dragged downwards, so that when the posterior grinders in the upper and lower jaw were in contact, the incisor teeth, projecting almost horizontally, were an inch and a half asunder. In the ordinary state of the mouth, the tongue where it emerged from the teeth and lips, was two inches in its vertical diameter; in fact, at this point, it was almost an exact cylinder, being flattened a little above and below, when the back teeth were brought together. From the great extension of the lower jaw, the bicuspid, cuspid, and incisor teeth were thrown at great distances from each other, and had such an incrustation of tartar, that the cuspid and incisor teeth were about three times their natural diameter. In the ordinary state of the mouth no space existed between the upper lip and tongue, but this frightful organ of speech looked like an immense bougie thrust into the mouth, for the purpose of dilating it to the last extent.

The boy was under size; had a sallow, downcast look; and has never, as his friends say, had very high health. He could articulate many words intelligibly; wore a cloth screen over the tongue; and had a perpetual dribbling of saliva from the mouth. He is said to have enjoyed his pastimes with his playmates, and has been frequently observed in winter sliding upon the ice, with an icicle hanging to his tongue.

In the operation, which was performed after a few days preparation, I chose the plan recommended by Dr. Thomas Harris of Philadelphia. The tongue was first dissected up from the floor of the mouth about three-fourths of an inch; then a sharp-pointed bistoury was plunged through it from below upwards, a little outside of the median line, and carried forward and outward through its lateral margin; the vessels were then tied, and after the other side of the organ was treated in the same way, the narrow isthmus remaining was separated by a scalpel, and the portions of the fork brought together and secured by stitches. The wound healed kindly in a few days.

The removal of the posterior grinders to promote a partial approxi-

mation of the jaws, I deferred till the tongue was healed; but an entire elevation of the lower jaw to its proper level, must be a work of time. This, it may be hoped, will ultimately be accomplished, under the efforts of nature, the tendency of which is to bring wrong things right, to which aid may, perhaps, be given by a bandage long worn, including the chin and the vertex of the head. In three weeks the tongue had lost from a third to half an inch in its vertical diameter; it is still, however, too thick and clumsy, although the power of articulation has been improved by the operation. If in the course of six or eight months, the tongue should not be considerably diminished in its vertical diameter, it is my purpose to remove from it a horizontal wedge-shaped segment, in order to reduce it to convenient dimensions.

CASE IX. *Case of Apparently Malignant Disease.*—In Vol. XI. of the New England Medical Journal, published at Boston, I reported a case of encephaloid or medullary tumour, for which I operated in February, 1822. The patient was Dr. Heaton, æt. 51; he discovered the tumour about three months before the operation, of the size of a filbert, or a little larger, just below the left angle of the jaw. The growth of this tumour was so rapid as to have acquired the size of the human fist, in the short period just named. At one point of the tumour there was a prominence which had a pulpy feel; and as the integuments covering this part were thinner and more tense than elsewhere, it was deemed probable that the tumour would, ere long, throw out at this place an intractable fungus. These suspicious appearances, coupled with the rapid progress of the disease, presented an unfavourable prognosis, and it was distinctly stated to the patient, that although an operation might not improbably prolong life, it could hardly be supposed that there was more than one chance in a hundred for a cure. He determined however to submit to the operation, remarking, that if there was one chance in a hundred, he would have it.

As the tumour was deeply imbedded in the neck, the operation was commenced by applying a ligature to the primitive carotid, and then prosecuted by careful dissection till all the diseased mass was removed. The degeneration was confined to the soft parts, although it had been feared that the transverse processes of some of the cervical vertebræ, as well as the hyoid bone, were implicated; the posterior part, or horn of the last named bone, however, with its appropriate muscles projected some way into the cavity made by the removal of the tumour, a portion of which had insinuated itself so far within as partially to enclose the fork of the carotids, as well as some of the branches of the external division of that vessel. The wound healed readily; and the patient,

who had been very temperate in his habits, still lives, enjoying good health, without having had the least indication of the return of the disease. My object in introducing this case here is, to adduce one example of what may now be presumed to be a radical cure of an encephaloid tumour; for I have never in my life seen a more perfectly cerebriform or medullary texture in a morbid growth than in some parts of this tumour.

*CASE X. Ligation of both Primitive Carotids.*—To those gentlemen of the profession who felt an interest in the case of J. Pattee, recorded in Vol. V. p. 316, (Feb. 1830,) of this Journal, it may not be unwelcome to learn the sequel. The case was one of a large *nævus*, of five inches diameter, and two inches height, upon the vertex of the head, which had commenced about two years before, and which, slowly increasing, had bled repeatedly within the last six months, once to the amount of two quarts, as estimated by his physician.

In the autumn of 1827, (the patient being then twenty years of age,) I tied the left, and on the twelfth day after, the right, primitive carotid artery, and followed this operation by the use of an alum lotion, joined with as much permanent compression as the patient could bear, hoping by these means to promote an absorption of the tumour. In four weeks it was reduced by estimation to one-third of its original volume: at this time it appeared to be stationary, but it soon after exhibited a slight pulsatory movement, which, together with the volume of the tumour, rapidly increasing, I proceeded to dissect out the whole mass six weeks after applying a ligature to the second carotid. Notwithstanding the application of about forty ligatures in encircling, step by step, with an incision at the base of the tumour, before dissecting it away, blood, to the amount of nearly two quarts, was lost in the operation. The cicatrix of this extensive wound was tender for some months, and occasionally broke away; but after the lapse of a year, it was firm, and has never since ulcerated, and although it produces no hair, it is now only about one-half of its original diameter.

On the application of a ligature to the second carotid, the patient, although his face was distinctly paler than before, exhibited no signs of a deficient supply of blood to the brain, but walked down two flights of stairs from the operating room, and rode to his lodgings, nearly half a mile, without inconvenience. Most of the time since his recovery, from the operation of removing the tumour, he has enjoyed very good health. Occasionally he has had symptoms of cerebral plethora, indicated by pain or a sense of fulness in the head, and a congestion of

the vessels of the conjunctiva, from which important relief or a speedy cure has been gained by a single bleeding. With the exception of about one year, he has been a hired labourer in my family, since his convalescence from the last operation; and by his intelligence, activity, power of endurance, and fidelity, secures to himself as high wages as any man in the county is able to command.

*Fairfield, N. Y., December, 1837.*